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(54) Title: METHODS AND VECTORS FOR MAKING KNOCKOUT ANIMALS

(57) Abstract: The present invention includes methods for integrating a modifying polynucleotide into a target polynucleotide in a cell, for instance, a fish cell or a mouse cell, and methods for making chimeric animals, heterozygous animals, and homozygous animals that are chimeric, heterozygous, or homozygous, respectively, for a modifying polynucleotide integrated into a target polynucleotide. The present invention also includes vectors and methods of using the vectors for integrating a modifying polynucleotide into a target polynucleotide in a cell, for instance, a fish cell or a mouse cell.